

AMENDMENT(S) TO THE SPECIFICATION

Please add a paragraph beginning at page 1 , line 5:

CROSS REFERENCE TO RELATED APPLICATION

The present application is a 35 U.S.C. §§ 371 national phase conversion of PCT/ KR2005/000485 , filed 23 February 2005, which claims priority of Korean Patent Application No.10-2004-0016400, filed 11 March 2004, which is herein incorporated by reference. The PCT International Application was published in the English language.

Please replace the following paragraph at page 2, line 28 with the following rewritten paragraph:

USP 6,165,365, Shear localized filtration system, and USP 6,416,666, Simplified filtration system, disclose the technique that the centrifugal force and the rotational force are applied to the fluid with the viscosity of the fluid by rotating the piled separation membranes. According to that, the movement of the fluid between the separation membranes ~~are~~ is caused to reduce the adhesion of solid material on the surface of the membranes. Furthermore, four through sixteen, optimally eight, fixed type spokes are disposed radially between the separation membranes, which makes the pressure distribution uniform and the speed of fluid between the spokes and the membranes great to increase the shear intensity, thereby preventing the adhesion of the solid material.

Please replace the following paragraph at page 3, line 26 with the following rewritten paragraph:

According to the above-mentioned SE 451429, the regeneration process for the separation membranes is ~~the~~ the process that a mechanical element such as a brush or a valve is attached on the blade of the rotor and the material adhered to the surface of the separation membrane is removed by rotating it, which has the shortcoming that the porous coating on the surface of the separation membrane is also removed during that process. In order to compensate such a shortcoming, the surface of the membrane is newly coated, however, such a mechanical separation membrane

regeneration process cannot maintain the required size of the pores as desired, and the separation membrane has to be exchanged with a new one when the regeneration is not easy. The above-mentioned SE 459475 proposes the method to increase the capacity by piling up the filter units.

Please replace the following paragraph at page 5, line 32 with the following rewritten paragraph:

According to the fifth preferable embodiment of the present invention, the first blades and the second blades are disposed so that at least a part thereof are overlapped with each other in the rotational axis direction and are disposed so as to be distanced from each other in a circumferential direction around the rotational axis direction, and at least one of protrusion is disposed between the first blades and the second blades.

Please replace the following paragraph at page 6, line 22 with the following rewritten paragraph:

According to the present invention, the pollutant material adhered to the separation membrane can be removed effectively since various types of vortex water flow are generated over wide range. Therefore, the efficiency of the filtering apparatus ~~in processing~~ processing the polluted water increases, and the energy loss of the filtering apparatus is reduced. Furthermore, sufficient vortex water flow can be generated with low energy even for the fluid of different characteristics such as density or viscosity.

Please replace the following paragraph at page 9, line 3 with the following rewritten paragraph:

FIG. 4 is a view showing the first embodiment of the rotor for generating vortex water flow according to the present invention, and FIG. 5 is ~~an enlarged~~ a sectional view of part A in FIG. 4 including the cross section along the line I-I of FIG. 4.

Please replace the following paragraph at page 10, line 22 with the following rewritten paragraph:

In the second embodiment, the first blades 211 and the second blades 221 are disposed at positions different from each other also in the circumferential direction around the rotational axis of the rotor 200. More particularly, the first blades 211 and the second blades 221 have the same shape and width with each other, and only the arranged positions thereof are different.

Please replace the following paragraph at page 10, line 36 with the following rewritten paragraph:

FIG. 11 is a view showing the rotor for generating vortex water flow according to the third embodiment of the present invention, and FIG. ~~23~~12 is a cross sectional view of FIG. 11 along the line III-III.

Please replace the following paragraph at page 11, line 1 with the following rewritten paragraph:

In the third embodiment, the first blades 311 and the second blades 321 are disposed at positions different from each other also in the circumferential direction around the rotational axis of the rotor 300, and simultaneously, furthermore, are distanced from each other in the circumferential direction. Furthermore, the first blades 311 and the second blades 321 are so disposed as to be distanced equally from each other in the circumferential direction. The width and the shape of the first blades 311 and the second blades 321 are same with each other. Therefore, as shown in FIG. 12, the first blades 311 and the second blades 321 are arranged in a zigzag manner.

Please replace the following paragraph at page 12, line 27 with the following rewritten paragraph:

The protrusions 530 are formed to have width varying in the circumferential direction of the rotor 500 and are formed to have the streamlined width in the rotational direction of the rotor 500. For example, the protrusions 530a can be formed to have horizontal cross section of triangle shape as shown in FIG. 19, and the protrusions 530b can be formed to have the triangle shape basically and the rear part in the rotational direction is curved to protrude rearward as shown in FIG. 20. According to such a shape, the front part in the rotational direction undergoes the little resistance of water to result in low loss of rotational energy, and the rear part in the rotational direction generates the vortex water flow effectively. Furthermore, as shown in FIG. 21, the protrusions 530c can be formed to have the cross section of circle shape substantially. (FIGS. 19 through 21 show the states that the second rotor 520 is omitted disassembled in order to illustrate the shape of the protrusions clearly.)

Please replace the following paragraph at page 13, line 22 with the following rewritten paragraph:

FIGS. 22 and 23 are the experimental result tables showing the comparison result of the performance of the rotor according to the present invention with that of the bar type rotor disclosed in the above-mentioned USP 6,027,656. As shown in the figures, the multi-blade type rotor according to the present invention results in double the performance of the conventional bar type rotor under the same operation condition such as supplying pressure or operating speed, and in the aspect of the processing amount, the consumed energy is 50% through 60% of that of the bar type rotor in precessing processing the same amount of water. That means the face that the multi-blade type rotor of the present invention shows the improved efficiency of about 300% in comparison with the bar type rotor, which is superior effect over the conventional products.

Please replace the following paragraph at page 14, line 1 with the following rewritten paragraph:

In the present invention, the passage through which the slurry is supplied and ~~and~~ then is discharged is constituted by two water passage ports 79 formed on the filter tray 70, so it is needless to form separate passage outside of the filter tray 70. Accordingly, the size of the system can be reduced as much as 120% or more in the aspect of area, so the processing efficiency per unit area increases.

Please replace the following paragraph at page 14, line 7 with the following rewritten paragraph:

According to the present invention, the pollutant material adhered to the separation membrane can be removed effectively since various types of vortex water flow are generated over wide range. Therefore, the efficiency of the filtering apparatus in ~~precessing~~ processing the polluted water increases, and the energy loss of the filtering apparatus is reduced. Furthermore, sufficient vortex water flow can be generated with low energy even for the fluid of different characteristics such as density or viscosity.